

CLAIMS:

1. A DSRC car-mounted equipment for communicating transmitting and receiving data with an on-the-road equipment comprising:

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a reception sensitivity-increasing means for increasing the reception sensitivity in a communication area with an on-the-road equipment in response to the entrance into a communication start area with the on-the-road equipment; wherein

the reception sensitivity-increasing means returns the reception sensitivity back to the normal reception sensitivity of before entering into the communication start area in response to the end of communication with the on-the-road equipment.

2. A DSRC car-mounted equipment according to claim 1, wherein the reception sensitivity-increasing means includes:

an electric field intensity detector for detecting the electric field intensity of a signal received from the on-the-road equipment;

a comparator circuit that compares with the electric field intensity with a predetermined judging level and outputs an electric field intensity judgement signal when the electric field intensity is not smaller than the judging level; and

a reception control unit for variably setting the judging level in response to the electric field intensity judgement signal; and wherein

the reception control unit changes the judging level into a highly sensitive judging level lower than the normal judging level in response to a first electric field intensity judgement signal corresponding to the entrance into the communication start area, and fetches the reception data in the signals received in the communication area.

3. A DSRC car-mounted equipment according to claim 1, wherein the reception sensitivity-increasing means includes:

a reception amplifier for amplifying a signal received from the on-the-road equipment;

an electric field intensity detector for producing an electric field intensity judgement signal upon detecting the electric field intensity of a signal through the reception amplifier; and

a reception control unit for controlling the amplification factor of the reception amplifier in response to the electric field intensity judgement signal; and wherein

the reception control unit changes the amplification factor of the reception amplifier into an amplification factor larger than the normal amplification factor in response to a first electric field intensity judgement signal corresponding to the entrance into the communication start area, and fetches the reception data in the signals received in the communication area.

4. A DSRC car-mounted equipment according to claim 1, wherein the reception sensitivity-increasing means changes the judging level into a highly sensitive judging level lower than the normal judging level in response to at least a first or a subsequent communication signal received from the on-the-road equipment after the entrance into the communication start area.

5. A DSRC car-mounted equipment according to claim 1, further comprising a vehicle speed control unit for producing a vehicle speed data of the vehicle, wherein the reception sensitivity-increasing means includes:

a predetermined value-setting means for setting a first predetermined value corresponding to a low-speed running state of the vehicle and a second predetermined value corresponding to a high-speed running state of the vehicle; and

a vehicle speed-judging means for comparing the vehicle speed data with the first and second predetermined values; wherein

when the vehicle speed data is smaller than the first predetermined value, the normal reception sensitivity is corrected toward the decreasing side; and

when the vehicle speed data is larger than the second predetermined value, the normal reception sensitivity is corrected toward the increasing side.





transmitted and received to and from the on-the-road equipment; and

an external storage medium connected to the car-mounted controller for exchanging data related to the toll collection; wherein

the car-mounted controller exchanges data related to the toll collection between the on-the-road equipment installed on a toll road and the external storage medium, and automatically executes the toll collection processing based on the data related to the toll collection.

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